



I-CNS 2002

Surveillance

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Key R&T Issues



I-CNS 2002

- Identify key research and technology issues of both near-term (now to 2010) and far-term (beyond 2010) impact.
 - Near
 - Evolving FAA, DOD, & LEA need for a Common Integrated Air Picture(1)
 - Needs to Address Security Concerns
 - Alternative Non-Cooperative Surveillance (9)
 - Conformance Monitoring; Difficult Issue
 - Using Available ATC Surveillance Data
 - Multi-Sensor Track Correlation/Fusion (6)
 - » DoD/FAA Information Integration
 - Another ATCAC Study Is Needed (13)



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Key R&T Issues



I-CNS 2002

- Identify key research and technology issues of both near-term (now to 2010) and far-term (beyond 2010) impact.
 - Both
 - Surveillance Quality Needed to Support Current & Future ATC (2) Automation [A-G, A-A]
 - Concept of Operations (7)
 - ADS-B Security (8)
 - CNS Architectures (15)
 - Lines Are Being Blurred
 - Functional Allocation



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Key R&T Issues



I-CNS 2002

- Identify key research and technology issues of both near-term (now to 2010) and far-term (beyond 2010) impact.
 - Far
 - Can/Should a Low-Cost Multi-Mode Transponder [Data Radio] Be Built? (3)
 - Oceanic Surveillance; FANS-1 Replacement with Wider Equipage (4)
 - Airborne Spectrum Use and Spectrum Tool (5)
 - Multiple Bands, Detailed Analysis
 - Surveillance Costs, Including O&M (10)
 - Small Airport Surveillance (11)
 - Space-Based Radar (12)
 - UAV Operational Needs (14)
 - Surveillance Issues of Conformance Monitoring (16)
 - Situational Awareness/ See and Avoid (17)



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- 1 (H) Evolving FAA, DOD, & LEA need for a Common Integrated Air Picture
 - Civil & DoD CONOPS Evolving, SDN Initiative
 - FAA, LL, MITRE, DoD
 - Low Need for GRC R&T

- 2 (H) Surveillance Quality Needed to Support Current & Future ATC Automation [A-G, A-A]
 - ATC Displays; Is it Good Enough for Automation Tools?
 - MITRE ARC? Near Term
 - Low Need for GRC to Examine Long-Term Needs (see #13)



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- 3 (M) Can/Should a Low-Cost Transponder (Data Radio) Be Built?
 - Evolve Toward Efficient Spectrum Use for Future Surveillance Requirements
 - Not Being Addressed
 - High Need for GRC Study

- 4 (H) Oceanic Surveillance
 - Study Low-Cost FANS-1 Replacement
 - SC-194 Examined ADS-B Self-Separation
 - Not Being Addressed
 - High Need for GRC R&T



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- 5 (H) Airborne Spectrum Measurement Tool
 - Need to Identify Current Status
 - Develop and Deploy Field Data Collection and Analysis Capability
 - Medium Need for GRC

- 6 (H) Multi-Sensor Track Correlation/Fusion – see #1



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- 7 (H) Concept of Operations – see #13
- 8 (L) ADS-B Security
 - May Be Near-Term Problem for FAA Rather than NASA
 - Uncertain Need for GRC Involvement



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- 9 (M) Alternative PSR/SSR Surveillance for Small Airports
 - SATS Looking at this in Part
 - Medium Need for GRC Involvement
- 10 (L) Surveillance Costs, Including O&M (delete)
 - Near-Term; N/A



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- 11 (M) Small Airport Surveillance - see #9
- 12 (L) Space-Based Radar
 - Military Requirement; High Cost/Classification
 - DoD, Boeing
 - Low Need for GRC Involvement



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- 13 (H) Another ATCAC Study Is Needed
 - Need Extensive Objective Review
 - Include Human Factors, User Participation
 - High Level (Mineta, O’Keefe) Support Needed for Study
 - High Need for GRC Involvement

- 14 (M) UAV Operation Surveillance Needs
 - Assume Transponder Equipage
 - Low Need for GRC Involvement



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- 15 (H) CNS Architectures - See #13
- 16 (H) Surveillance Implications of Conformance Monitoring
 - Subset of #1
 - Ongoing Ames Investigation
 - MITRE/CAASD Study
 - Uncertain Need for GRC Involvement
- 17 (L) Situational Awareness; See and Avoid
 - FAA Currently Working Issue
 - Previous TCAS Work
 - Surveillance Need Unclear